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Instruction Manual

1T-CT-690 Series
Wireless HDMI Extender

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1.0 INTRODUCTION

Thanks for purchasing the 1T-CT-690 Series Wireless HDMI Extender product from TV One. The individual components of this HDMI over Wireless Extender system consist of the 1T-CT-691 Transmitter and the 1T-CT-692 Receiver which constitute a system used to transmit 24 bit RGB color (4:4:4) or HDMI1080p video, plus embedded, lossless audio, at a data rate of 1.5Gbps. The 1T-CT-690 series extender can achieve open field signal distribution distances of up to 20 meters (65 feet) for uncompressed, 1080p - 24fps/30fps signals. Both the Transmitter and Receiver units feature the unique TV One-task locking power connectors to enhance overall system mechanical security.

Our professional video conversion products have been serving the industry for over twenty years. TV One offers a full line of high quality Seamless Switchers, Video Scalers, Up/Down/Cross Converters, Analog-Digital Converters (SD/HD-SDI, HDMI, DVI), Format Converters, Standards Converters, TBC/Frame Synchronizers, Matrix Routing Switchers, Signal Distribution Amplifiers and Cat.5 Transmission Systems.

1.1 Liability Statement

Every effort has been made to ensure that this product is free of errors. TV One cannot be held liable for the use of this hardware or any direct or indirect consequential damages arising from its use. It is the responsibility of the user of the hardware to check that it is suitable for his/her requirements and that it is installed correctly. All rights reserved. No parts of this manual may be reproduced or transmitted by any form or means electronic or mechanical, including photocopying, recording or by any information storage or retrieval system without the written consent of the publisher.

TV One reserves the right to revise any of its hardware and software following its policy to modify and/or improve its products where necessary or desirable. This statement does not affect the legal rights of the user in any way.

All third party trademarks and copyrights are recognized. The TV One logo, TV One-task and CORIO are the registered Trademarks of TV One. All other trademarks are the property of their respective holders.

1.2 Features

The 1T-CT-690 series of HDMI over Wireless systems have many features that enable them to perform in a superior manner. Among these features you will find:

- HDTV Resolutions to 1080p, 24fps/30fps
- Uncompressed 1080p signal distribution up to 20 meters (65 feet)
- 24 bit RGB, 4:4:4 Video Architecture
- RGB Video Inputs of VGA & SVGA (60/72), and XGA (60/70) Supported
- Supports Embedded HDMI v1.2 Lossless Digital Audio
- Compliant with HDMI v1.2, HDCP 1.1 specifications
- Supports all standard high definition inputs up to 1080P
- Video Encryption possible using 256 Bit AEC Based Algorithm
- Locking +5VDC Connectors for enhanced mechanical security

2.0 SPECIFICATIONS

Video I/O	
1T-CT-691 Tx-HDMI Input	3x via HDMI Connector, Switchable
1T-CT-692 Rx-HDMI Output	1x via HDMI Connector
Supported Signals & Protocols	
Industry Standards	HDMI v1.2, HDCP 1.1
Video Performance	
Maximum Resolution (HDTV)	1080p/24fps/30fps
Other Supported STV/HDTV Res.	480i/p, 576i/p, 720p, 1080i
RGB Resolution	VGA & SVGA (60/72), XGA (60/70)
Color Space	RGB 24 Bit, 4:4:4, YUV 4:4:4 YUV 4:2:2
Video Data Rate	1.5Gbps
Link Latency	Less than 1ms
Signal Encryption	256 Bit AEC Based Algorithm (Unicast Mode)
Audio Supported	
Embedded, Digital	All HDMI V1.3 Embedded Audio Signals
RF Band	
5 GHz	Licensed, MIMO
Maximum Range	
1T-CT-691/692 Tx/Rx System	1080p/24fps/30fps: 20 meters (65 ft)
Special Features	
EDID and CEC	EDID and CEC in Unicast Mode
Remote Control	
Remote Control Type	1x Infrared Remote Control
IR Blaster Accessory	
IR Format	NEC Code – 36-36KHz Range
Environmental	
Operating Temperature	0° to +40° C (+32° to +104° F)
Operating Humidity	10% to 90%, Non-condensing
Storage Temperature	-10° to +70° C (12° to +158° F)
Storage Humidity	10% to 90%, Non-condensing
Warranty	
Limited Warranty	2 Years Parts and Labor
Regulatory Approvals	
1T-CT-691, 1T-CT-692	FCC, CE, RoHS
Power Supply	UL, CUL, CE, PSE, GS, RoHS
Mechanical (H-W-D)	
1T-CT-691Tx, 1T-CT-692 Rx (H-W-D)	33.5x162.5x164.5mm (1.3x6.4x6.48”)
Weight	
1T-CT-691 Transmitter	348g (0.77 lbs)
1T-CT-692 Receiver	316g (0.70 lbs)
Power Requirement	
External Power Supply	2x 5VDC@2.6A, Locking DC
Accessories Included	
2x Power Adapter	US, UK or Euro
1x User Manual	
Model Numbers	
1T-CT-691	HDMI Wireless Transmitter
1T-CT-692	HDMI Wireless Receiver

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3.0 CHECKING PACKAGE CONTENTS

Before attempting to use this unit, please check the packaging and make certain the following items are contained in the shipping carton:

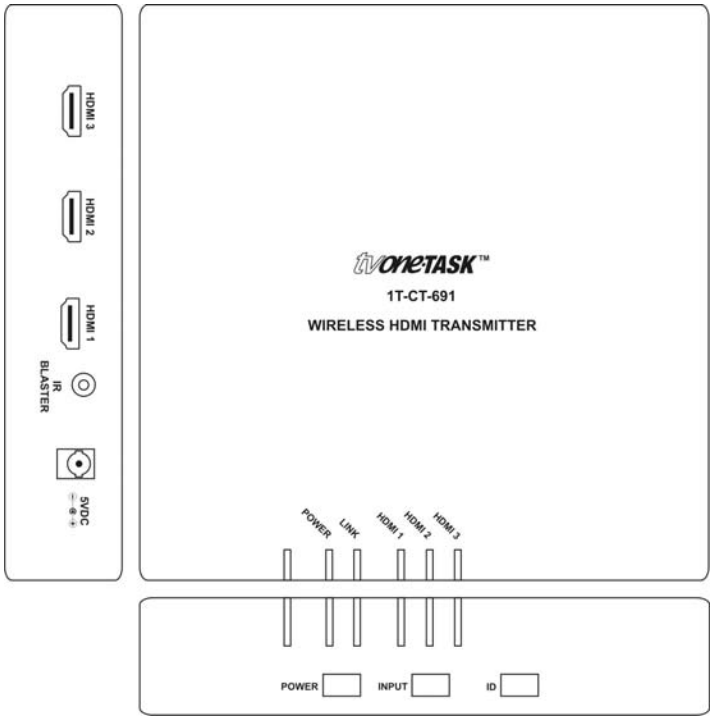
- 1x Transmitter and 1x Receiver unit
- 2x Power Adapter
- 1x Operations Manual
- 1x Remote Control
- IR Blaster Cable Assembly
- 2x Device Holders

Note: Please retain the original packing material should the need ever arise to return the unit. If you find any items are missing, contact your reseller or TV One immediately. Have the Model and Serial Number and Invoice available for reference when you call.

4.0 CONNECTING THE HARDWARE

Please study the panel drawings below and become familiar with the signal input, outputs, power requirements/inputs plus any controls present.

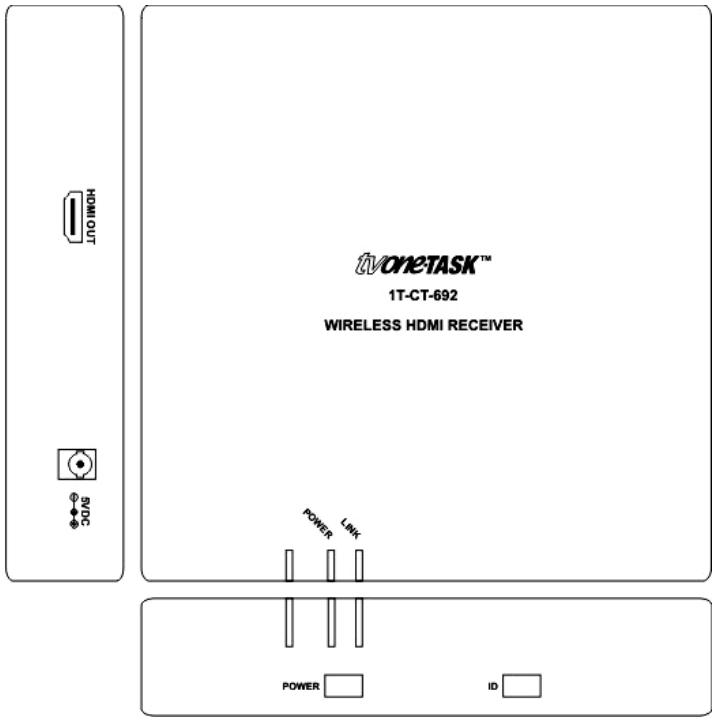
4.2 1T-CT-691 Transmitter



1. Connect up to 3 HDMI sources to the HDMI IN connectors of the 1T-CT-691 Transmitter using appropriate HDMI cables.

2. Connect the first AC adapter to the unit and then to the AC source.

4.3 1T-CT-692 Receiver



1. Connect the HDMI OUT connector of the 1T-CT-692 Receiver to the HDMI input of the remote display or other device, using an appropriate cable.

2. Connect the second AC adapter to the unit and then to the AC source.

Note: The user is cautioned that it's very important that you verify that the HDMI source functions properly when connected directly to the HDMI display device before you attempt to use any of the extender system components. Failure to do this introduces an unwanted variable that would then have to be resolved should the system not function as expected.

5.0 OPERATING THE UNITS

Once the connections have been made and power applied as explained above, there are few operational requirements. It is recommended however that the power on sequence be as follows: HDMI over Wireless Transmitter, HDMI over Wireless Receiver, HDMI sources and HDMI destination device – in that order. *Note that only when in the Unicast Mode, (See 5.1 below), are EDID and CEC features implemented.*

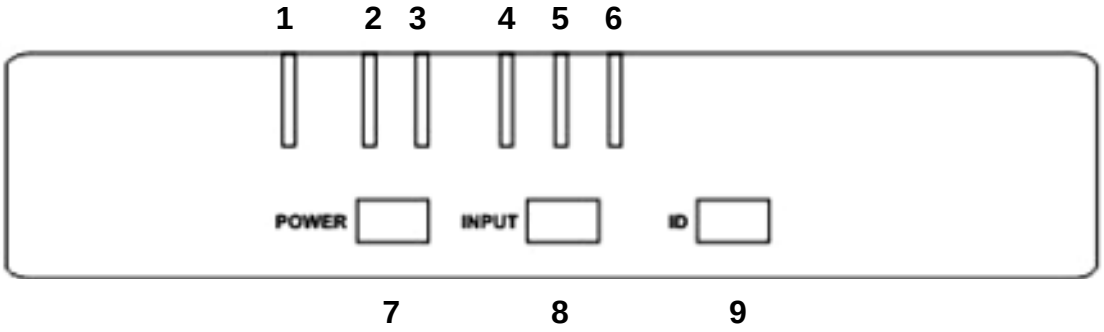
Explanations of the operating modes and indicators are as follows:

5.1 Unicast and Broadcast Modes

The system is capable of transmitting in an encrypted mode. This mode is called the "Unicast" mode and when in this mode, only your 1T-CT-692 Receiver will be able to view the content. This is the only mode where HDCP (High Definition Content Protection) media may be transmitted and received. The second mode is the "Broadcast" mode. In this mode, any WHDI (Wireless High Definition Interface) capable receiver within range will be able to view your unencrypted signal.

Because the HDCP rules do not allow indiscriminate distribution of a HDCP protected program, any HDMI signal with HDCP protection that's input to the 1T-CT-691 transmitter will not be connected to the RF stage of the device and therefore will not be viewable remotely. For this reason, you should always use the Unicast mode if there is any chance of HDCP content being present. If your system does not work in the Broadcast mode, it will most likely be because there is HDCP content present.

5.2 1T-CT-691 Transmitter Controls and Indicators



Item 1: The IR remote sensor. You should point the furnished remote control at the front of the 1T-CT-691 in order to turn it on or off and to make HDMI input selections (See Remote Control discussion below).

Item 2: Power Indicator. This indicator will illuminate when the unit is receiving power.

Item 3: Link Status Indicator. When the transmitter and receiver units are attempting to synchronize, this indicator will blink rapidly. When a signal path is detected and synchronization is in progress, the indicator will blink slowly. When the link is established and synchronization has been attained, the indicator will glow steadily.

Item 4,5,6: The indicators show which of the 3 HDMI sources have been selected. The indicator labeled "4" above is the indicator for HDMI source number 1; Indicator "5" above is the indicator for selection of HDMI source 2 and indicator labeled "6" shows that HDMI source 3 has been selected. (See discussion on Input button below.)

Note: The indicators associated with items 2 through 6 above are labeled with their individual function on the top of the 1T-CT-691 Transmitter for your convenience.

Item 7: Power On/Off. This push button allows the user to turn the 1T-CT-691 Transmitter on or off from the front panel. Press it to turn the unit on and press again to turn the unit off.

Item 8: Input Selection. This push button allows selection of the desired HDMI input signal. Each time the button is pressed, the next HDMI source is selected. Once source number 3 has been selected, the sequence repeats with number 1 being selected. Indicators 4,5 and 6 show the status of the selection and provide visual feedback of the current selection.

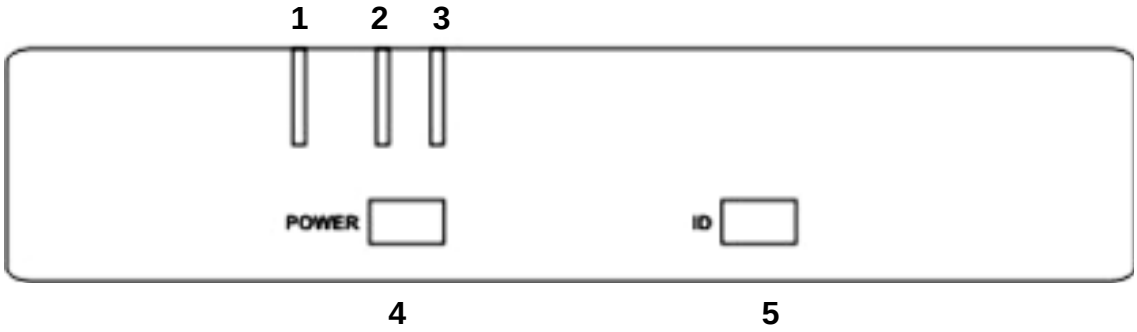
Item 9: Force Sync. This push button forces a synchronization of the 1T-CT-691 Transmitter with the 1T-CT-692 Receiver by pressing and holding the button for 2 seconds. Performing this action will cause the unit to go through the synchronization procedure described above.

Item 9 performs another function. It toggles between Unicast and Broadcast modes:

Pressing and holding this button for 10 seconds will force a change in transmission modes. If the associated indicator (item number 3 above – the link indicator) is glowing Green, the system is in the Unicast mode. If it is glowing Red, the system is in the Broadcast mode. Pressing and holding the button for 10 seconds will force the change from one mode to the other. (Please kindly press & hold ID button on receiver as well after you finish set-up on transmitter)

Note that operating the unit in the Broadcast mode means it cannot transmit HDCP media. If you try to do this, the link will appear to malfunction. It also means there is no bi-directional communications between the 1T-CT-691 Transmitter and the 1T-CT-692 Receiver so the EDID and CEC features will not function. Finally it means there is no encryption and any WHDI receiver within range will be able to "see" the programming.

5.3 1T-CT-692 Receiver Controls and Indicators



Item 1: The IR remote sensor. You should point the furnished Remote control at the front of the 1T-CT-692 in order to turn it on or off and to make HDMI input selections (See Remote Control discussion below).

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Item 2: Power Indicator. This indicator will illuminate any time the unit is receiving power.

Item 3: Link Status Indicator. When the transmitter and receiver units are attempting to synchronize, this indicator will blink rapidly. When a signal path is detected and synchronization is in progress, the indicator will blink slowly. When the link is established and synchronization has been attained, the indicator will glow steadily.

Item 4: Power On/Off. This push button allows the user to turn the 1T-CT-691 Transmitter on or off from the front panel. Press it to turn the unit on and press again to turn the unit off.

Item 5: Force Sync. This push button forces a synchronization of the 1T-CT-691 Transmitter with the 1T-CT-692 Receiver by pressing and holding the button for 2 seconds. Performing this action will cause the unit to go through the synchronization procedure described above.

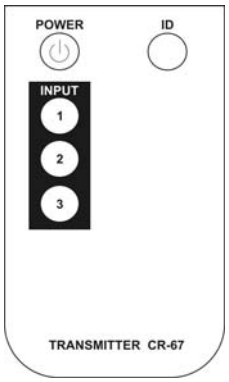
Item 5 performs another function. It toggles between Unicast and Broadcast modes:

Pressing and holding this button for 10 seconds will force a change in transmission modes. If the associated indicator (item number 3 above – the link indicator) is glowing Green, the system is in the Unicast mode. If it is glowing Red, the system is in the Broadcast mode. Pressing and holding the button for 10 seconds will force the change from one mode to the other. (Please kindly press & hold ID button on Transmitter as well).

Note that operating the unit in the Broadcast mode means it cannot transmit HDCP media. If you try to do this, the link will appear to malfunction. It also means there is no bi-directional communications between the 1T-CT-691 Transmitter and the 1T-CT-692 Receiver so the EDID and CEC features will not function. Finally it means there is no encryption and any WHDI receiver within range will be able to "see" the programming.

5.4 IR Remote Control

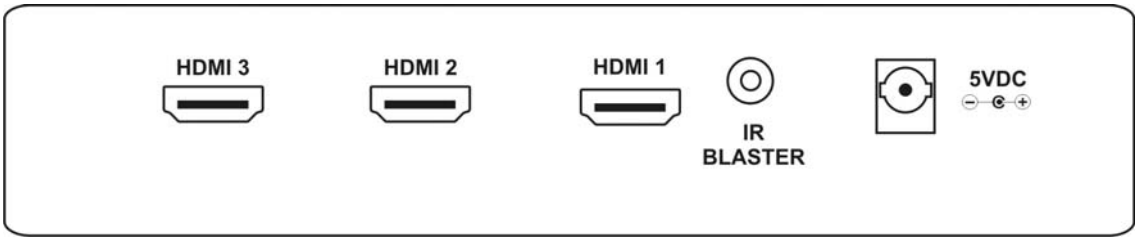
An Infrared type Remote Control is furnished with the 1T-CT-690 system. It will control either the 1T-CT-691 Transmitter or the 1T-CT-692 Receiver. To turn either unit On or Off, point the remote control device at the unit and press the Power button. Pointing, pressing and holding the "ID" button for 2 seconds will cause either unit to force a re-synchronization. Finally, when used with the 1T-CT-691 Transmitter, pressing one of the 3 Input buttons will select that HDMI source for viewing remotely.



5.5 IR Blaster

The IR Blaster is a standard accessory and is used to transmit a third party unit's IR control signals via the 1T-CT-691/692. This allows a DVD or other device connected to the 1T-CT-691 Transmitter to be controlled by its own IR Remote Control unit from the location of the 1T-CT-692 Receiver. The IR Blaster consists of a remote sensor connected to a mini plug via 6' (2 meter) cable that is connected to the 1T-CT-691 Transmitter. This in no way affects the CR-47 IR Remote Control capability of the 1T-CT-691/692 as described in Section 5.4.

Place the IR Blaster's Sensor over the IR Window of the DVD Player (or other unit) to be controlled remotely and plug the IR Blaster's Plug into the IR Blaster Jack on the 1T-CT-691 Transmitter. Point the DVD Player's IR Remote Control at the 1T-CT-692 Receiver and control the connected DVD Player remotely. *Note that the IR Blaster only supports NEC Code in the 36-38KHz range, which is compatible with many devices.*



IR Blaster plug pin assignments.

Pin	Assignment
1	5VDC Power
2	IR Signal
3	N/C

6.0 TROUBLESHOOTING

Other than faulty HDMI cables, attempting to transmit HDCP protected signals in the Broadcast mode or attempting to use the product over too great a distance, there are seldom problems with these HDMI Extender products.

If there is no image present at the remote location, connect the display device directly to the source to make certain that the problem is not in the display. If an image is present under those circumstances, make certain the transmitter and receiver(s) are receiving power. Next make certain your power supply connectors and the HDMI connectors are securely attached at both ends. After trying the above suggestions, should the problem still persist, contact your dealer for additional suggestions before contacting TV One. Should the dealer's technical personnel be unable to assist you, contact TV One via our support website: ***http://tvone.crmdesk.com.*** Create a technical support request on the site and our support team will respond within a short period of time.

7.0 LIMITED WARRANTY

LIMITED WARRANTY – With the exceptions noted in the next paragraph, TV One warrants the original purchaser that the equipment it manufactures or sells will be free from defects in materials and workmanship for a period of two years from the date of purchase. Should this product, in TV One's opinion, prove defective within this warranty period, TV One, at its option, will repair or replace this product without charge. Any defective parts replaced become the property of TV One. This warranty does not apply to those products which have been damaged due to accident, unauthorized alterations, improper repair, modifications, inadequate maintenance and care, or use in any manner for which the product was not originally intended.

Items integrated into TV One products that are made by other manufacturers, notably computer hard drives and liquid crystal display panels, are limited to the term of the warranty offered by the respective manufacturers. Such specific warranties are available upon request to TV One.

If repairs are necessary under this warranty policy, the original purchaser must obtain a Return Authorization Number from TV One and return the product to a location designated by TV One, freight prepaid. After repairs are complete, the product will be returned, freight prepaid.

LIMITATIONS - All products sold are "as is" and the above Limited Warranty is in lieu of all other warranties for this product, expressed or implied, and is strictly limited to two years from the date of purchase. TV One assumes no liability to distributors, resellers or end-users or any third parties for any loss of use, revenue or profit.

TV One makes no other representation of warranty as to fitness for the purpose or merchantability or otherwise in respect of any of the products sold. The liability of TV One with respect to any defective products will be limited to the repair or replacement of such products. In no event shall TV One be responsible or liable for any damage arising from the use of such defective products whether such damages be direct, indirect, consequential or otherwise, and whether such damages are incurred by the reseller, end-user or any third party.

8.0 REGULATORY COMPLIANCE

The 1T-CT-690 Series HDMI over Wireless Extender products have been tested for compliance with appropriate FCC and CE rules and regulations. The Power Adaptor/Supply has been tested for compliance with appropriate UL, CUL, CE, PSE, GS Rules, Regulations and/or Guidelines. This Product and Power Adapter is RoHS Compliant.

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